Moeschlin(1945)은 인공의 發熱物質로 Pyrifer을 
骨髓內의 白血球生成能検査法으로 利用하여 好 百分成 
을 보여 주었다. 그러나 이와 같은 發熱物質은 正常成 
量의 決定이 困難 많으나 原発 發熱等의 副作用 
이 간에 被検者에 至지 않은 影響을 주어 臨床的으로 
利用하게는 至지 않은 窮弊이 있다. 其後 Westphal 
及 共同研究者(19)에 依하여 Salmonella abortus equi에 
서 抽出した Lipopolysaccharide가 發熱作用은 거의 感 
 수 있을 뿐만 아니라 原発量으로도 原発된 白血球의 變 
化を 観察할 수 있다고 報告하였다(15)(16). Heilmeyer 教 
室の Keller(19)는 休眠期 本物質を 白血球系 骨髄機能 
検査法に 使用하여 個記した 較作用を 白血球生成 
系の 反應を 簡便で且つ 明確で 表示하며 常に 発現して 
고、著者(17)は 以に 闘争の視察を 以て 報告したま あ 
た. 著者等は Acetylated Lipopolysaccharide(Pyrexal) 
を 使用して 論疾患 特徴性造血系の 各疾患に あつて 
の 白血球の 性状及 量の変動を 白血球系 骨髄機能 如何を 
比較観察して、同時期に 人工的腸 射線照射を 施行す 
る 骨髄機能 低下を あつて 家児に Pyrexalを 注射す 
後 以に えた 反応に 至る 

患者は 本大学 入院 及 外来患者中에서 完全한 血液 
検査を 施行しな後、0.04%の Pyrexalを 1cc의 生理食 
塩水に 稀釀して 静脈注入し、注入後 2, 4, 8 및 24 
時間に 各々 赤血球、白血球 及 百分率を 血小板 及 
総量球を 計算せし、體温は 30分 間隔で 6~9時間 
間隔で 測定せし、以って 正常的 検査を 施行せし 
為に 健康成人 男女 40名 (17~30歳)を 計数せし、 
白血球系 變化は 著者(17)が 以て 発表せし 個々値を 注射後 4 
時間間で 休眠の 2~4倍の 白血球 増加を 見得せし 
為に、所謂 "Wilder氏方則"を 観察せし可有を 見得し、 
正常範囲内にて 観察せる 白血球増加度にて是 
診断の 意義を 発見し可有を 見得し(Fig. 1 参照). 

白血球 百分率を 보면 白血球 増加時には 総量球数が 
增加する が 肝左方流動を 見得し、好酸球 及 細球 
は 淋巴球と 陰反対に 減少を 보였다. 骨髄 大部 
分の 患者にて 白血球 增加 8~24時間後には 正常値に 戻 
帰を 見得し、肝左方流動を 見得し. 性別 及 年齢の 差異 
は 観察せし可有を 見得し.
[Fig. 2] Leukemia and Myeloma

[Fig. 4] Refractory Anemia

[Fig. 5] Splenomegaly

脾臓을 동반하지 않은 肝炎에서 있어서는 (軽度의 肝機能障害을 招来한 例도 包含) 一般的으로 白血球系 反應度는 肝機能障害에 比例하였다. 即 肝炎を 包含한 軽度의 肝障碍에 있어서는 正常人에 比하여 値差異는 없으나 正常変化에 近似한 曲線を 보이었음에 反하여 重症肝硬変症においては 白血球 增多症を 보을 수 없었으며, 肝機能의 恢復에 따라 점차 白血球生成能도 증
아래는 편향을 줄이기 위해 (Fig 6: 세부사항은 참조하십시오). 이 경우는 염증이 불규칙한 생체의 영향을 미친 결과가 있으며, 뇌의 기능은 각각의 약물에 따라 차이가 있습니다. 

[Fig. 6] Hepatomegaly
이 기능에서 생성되지 않은 그림을 나타내어 준다.

혈액이 반복되면 뇌의 기능이 90% 정도로 모델을 갖추고 있는 과로써, 발전율은 5년 이상, 전반적으로 10-20회이며, 매일 380-400cc의 혈액을 반복함으로써 추가적인 영향을 입을 수 있다. 

"정상 혈액물" 23명은 어떤 경우에 따라서도, 뇌의 기능을 반복한 Pyrogen test를 실시하였다. 대부분의 혈액은 뇌의 혈액이 희석되어 죽은 혈액이 있었다. (혈색경색 2병에 비해, 색소량 7g/100ml)

이러한 호흡기제, 또는 호흡기제의 약물에 따른 생성은 Pyrexal을 사용한 혈액 발생량이 높은데, 정상 혈액의 90% 정도로 나타났다. 

放射線「메니저」가 여러 분야에서 주요한 주요한 용도로 사용하고 있는 오늘날, 방사선치료의 일차적 그룹 및 내분비, 뇌의 기능에 가장 많은 영향을 주는 방식이 되어 방사선에 대해 잘 이해하고 있는 뇌의 기능을 생각할 수 있다. 

Leucopoietic Bone Marrow Function Test with Acetylated Lipopolysaccharide (Pyrexal)*

By Chang-Soon Koh, M.D., Munho Lee, M.D.
Seung-Ho Lee, M.D.
Department of Internal Medicine.
College of Medicine.
Seoul National University.
Seoul, Korea

SUMMARY

The leucopoietic bone marrow function test described by Moeschlin using Pyrifer is recognized as being a simple yet accurate test, however, it has disadvantages in that the determination of dosage is difficult and side effects such as chills and fever are not infrequently encountered. Lately, Westphal, et al., extracted from Salmonella abortus equi a purified lipopolysaccharide which even in minute doses regularly causes significant changes in the leucopoietic system of normal humans and rabbits.

This study, using acetylated lipopolysaccharide (Pyrexal), was carried out to observe the qualitative as well as the quantitative changes of leucocytes in various diseases, especially those of the hemopoietic system.
In addition the effect of Pyrexal administered to irradiated rabbits was studied. The patients were selected from the in-and-out patients services of our hospital. After the administration of the complete blood status in the fasting state, 0.04 gamma of Pyrexal (Wander Santana 1084A) was diluted in 1 cc of normal saline injection. Erythrocyte, leucocyte, thrombocyte and reticulocyte counts and cellular morphlogy studies were done. The body temperature was determined at 30 minutes interval for 6 to 8 hours. 40 males and females, 17 to 50 years of age, were selected as the control group. In about 4 hours after injection, leucocytosis, 2 to 4 times the initial value, was observed in the control group.

The degree of leucocytosis did not appear to have diagnostic significance. A shift of the leucocytes to the left with an increase in the bandform cells was observed. The decrease in eosinophils and monocytes paralleled that of the lymphocytes. In almost all patients, total number of leucocytes returned to the normal value within 8 to 24 hours. There were no significant differences on the basis of sex and age. In 85 cases of chronic diseases of the gastrointestinal tract, such as gastritis, and the initial stage of gastric cancer without metastasis; in nephritis, hypertension, pulmonary tuberculosis and pleurisy, the changes in the blood picture were in general similar to those of the control group. In 29 cases associated with splenomegaly from any cause, the marked changes in the leucocyte count seen in the control group did not occur. Namely, in leukemia, no matter whether it was acute, chronic lymphatic, or myelogenic, there was no marked increase in the leucocytes after the injection. In hypoplastemic, carcinomatous metastasis to the bone marrow and refractory anemia, there was almost no response in the leucocyte count. When splenomegaly decreases or the blood picture was improved after treatment, the leucocytic reaction became more apparent, and if, on the contrary, splenomegaly or the blood picture exacerbated, the leucocytic reaction became less marked. Splenectomized cases showed normal leucocytic reaction very promptly. In hepatic insufficiency not associated with splenomegaly, no leucopoietic reaction was observed in almost all cases. The leucopoietic reaction could be corrected with the degree of liver dysfunction. Namely, the more the liver function was impaired, the less the changes of leucocytes, and the recovery of the liver function resulted in the gradual recovery of the leucopoietic reaction. In professional blood donors with severe anemia caused by repeated blood donation of as much as 380~400cc per time, 10~20 times a year over a period of more than 5 years, the authors conducted a study of the bone marrow its response to the pyrogen test. The response to the pyrogen in all donors was like that of the control group. The bone marrow examination revealed the typical iron deficiency anemia picture in all cases. The early diagnosis and the prophylaxis of radiation injuries is an important problem, since radiation energy is used more frequently in various

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